



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,123	05/25/2001	Bernhard Alphonso Ziegner	17539	1456

7590 04/13/2004
Tyco Technology Resources
Suite 450
4550 New Linden Hill Road
Wilmington, DE 19808-2952

EXAMINER

KOBERT, RUSSELL MARC

ART UNIT	PAPER NUMBER
----------	--------------

2829

DATE MAILED: 04/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,123

Applicant(s)

ZIEGNER ET AL. 

Examiner

Russell M Kobert

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23-43 is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 23 January 2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ernsberger et al (Colaminated Single and Multichip Package Development).

Ernsberger et al anticipates a multilayer microwave or mm-wave circuit comprising: a first metallized polymer layer (shown as the upper "layer pair" in Figure 1) comprising (a) a first polymer layer having a thickness of less than 50 microns and (b) a first metallization layer disposed on said first polymer layer, at least a portion of said first metallization layer being adapted for operation at a frequency ranging from 20 GHz to 100 GHz; a second metallized polymer layer (shown as the lower set of "co-laminate layer pairs" in Figure 1) comprising (a) a second polymer layer having a thickness of less than 50 microns and (b) a second metallization layer disposed on said second polymer layer, at least a portion of said second metallization layer being adapted for

operation as a ground plane; a dielectric substrate layer (shown as the "Fabricate ViaPly" in Figure 1) disposed between said first metallized polymer layer and said second metallized polymer layer; and a plurality of conductive vias (referred to as "sinterable vias," see page 135, column 1, last paragraph starting with the description of Figure 1) extending through said dielectric substrate layer and electrically connecting portions of said first and second metallization layers, said multilayer microwave or mm-wave circuit being a flexible circuit (see page 135, column 1, line 9 – page 136, column 1, line 21); as recited in claims 1 and 5.

5. Claims 1 and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Morris (6486408).

Morris anticipates (Figures 18 and 19) a multilayer microwave or mm-wave circuit comprising: a first metallized polymer layer (1903) comprising (a) a first polymer layer (inherent characteristic of "signal layer," 1903) having a thickness of less than 50 microns and (b) a first metallization layer disposed on said first polymer layer, at least a portion of said first metallization layer being adapted for operation at a frequency ranging from 20 GHz to 100 GHz; a second metallized polymer layer (1901 or 1902) comprising (a) a second polymer layer (noted as "insulation provided by layers 1901 and 1902," col 8, ln 21-22) having a thickness of less than 50 microns and (b) a second metallization layer disposed on said second polymer layer, at least a portion of said second metallization layer being adapted for operation as a ground plane (inherently part of "ground shield layers," 1901 and 1902); a dielectric substrate layer (noted as

Art Unit: 2829

flexible dielectric material 1403 in Figure 14) disposed between said first metallized polymer layer and said second metallized polymer layer; and a plurality of conductive vias (1201) extending through said dielectric substrate layer and electrically connecting portions of said first and second metallization layers, said multilayer microwave or mm-wave circuit being a flexible circuit (referred to as "flex circuit," 1800); as recited in claims 1 and 5.

6. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Schueller (5585162).

Schueller anticipates a multilayer microwave or mm-wave circuit comprising: a first metallization layer (36), at least a portion of said first metallization layer adapted for operation at a frequency ranging from 20 GHz to 100 GHz; a second metallization layer (22), at least a portion of said second metallization layer adapted for operation as a ground plane (col 3, ln 8-9); a dielectric substrate layer (referred to as polyimide; col 1, ln 30-31), said dielectric substrate layer disposed between said first and second metallization layers; and a plurality of conductive vias (30, 38) extending through said dielectric substrate layer and electrically connecting portions of said first and second metallization layers, said multilayer microwave or mm-wave circuit being a flexible circuit (reference to item 20; col 3, ln 7); as recited in claim 1.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2829

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernsberger et al (Colaminated Single and Multichip Package Development) or Morris (6486408) or Schueller (5585162).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have further limited the invention as described in claims 2-4 because these claims demonstrate limiting conditions which can be determined by routine experimentation and are considered to be within the scope of the invention as disclosed in Ernsberger et al or Morris or Schueller.

Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 C.C.P.A. (Patents) 1250, 156 F. 2d 239, 70 USPQ

Art Unit: 2829

412 ; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F. 2d 986, 38 USPQ 213 ; Allen et al. v. Coe, 77 App. D. C. 324, 135 F. 2d 11, 57 USPQ 136 .

10. Claims 6-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ernsberger et al (Colaminated Single and Multichip Package Development).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have further limited the invention as described in claims 6, 7, 13, 17, 19 and 22 because these claims demonstrate limiting conditions which can be determined by routine experimentation and are considered to be within the operable scope of the invention as disclosed in Ernsberger et al.

Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 C.C.P.A. (Patents) 1250, 156 F. 2d 239, 70 USPQ 412 ; Minnesota Mining and Mfg. Co. v. Coe, 69 App. D.C. 217, 99 F. 2d 986, 38 USPQ 213 ; Allen et al. v. Coe, 77 App. D. C. 324, 135 F. 2d 11, 57 USPQ 136 .

Moreover, the limitations of claims 8-12, 14-16, 18, 20 and 21 are considered an obvious variant of the claimed invention because limitations such as having polymer layers comprising polyimide or polymethylpentene and vias comprising conductive epoxy or metal-plated through holes are considered to be within the operable scope of the apparatus disclosed by Ernsberger et al.

11. Claims 23-43 continue to be allowable for the reasons made of record in the Office Action mailed on April 11, 2003.

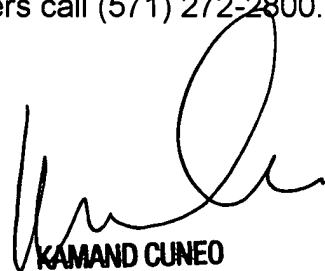
Art Unit: 2829

12. A shortened statutory period for response to this action is set to expire three month(s) from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (571) 272-1963. The Examiner's Supervisor, Kammie Cuneo, can be reached at (571) 272-1957. For an automated menu of Tech Center 2800 phone numbers call (571) 272-2800.



Russell M. Kobert
Patent Examiner
Group Art Unit 2829
March 23, 2004



KAMMIE CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800